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Published Monthly by the Mount Diablo Amateur Radio Club

MDARC FIELD DAY CALL W6CX 2M REPEATER W6CX/R 220 REPEATER W6CX/R MEMORIAL CALLSIGN W6LOW

VOLUME XXXIII February 1985 ISSUE NO. 2

CLUB CALENDAR

14 FEB ST. VALENTINES DAY
15 FEB MDARC GENERAL MEETING
18 FEB MDARC BOARD MEETING
Everyone is invited to join

The next meeting for the RRRG is the third wednesday in March.

NETS

"Let's get a little action going"
Tech Forum/Swap NET
Thursdays 7:30 P.M. 147.66/06
Emergency NET is 146.43 Simplex 7 P.M.
then QSY to 7.735 after roll call Thurs.
Parky NET
Every night 3895 ± QRM 10 P.M.
NTS/NCN 3630 KHZ 7 P.M. daily
slow speed session 8:30 P.M.
NCN/VHF 145.41 MHZ WA6EUZ/R 7:30 P.M.
CCRA NET Mon. 7:35 P.M. 147.735

The Rocky Ridge Repeater Group of the MDARC meets every two months to welcome new members and refresh ideas with old.

MEETING NOTICE

This month's meeting will be held at
The Grace Presbyterian Church
2100 Tice Valley Blvd.
at 8:00 P.M.

February GUEST SPEAKER

The guest speaker for the February meeting will be Dave Tyler (N6DRT) who is the Emergency Planning Coordinator for Contra Costa County Office of Emergency Services. Dave is well known in the County as the west county E.C. and a leader of the County RACES program. His talk will explain the makeup of the County Emergency Preparedness program and the role we, as amatuers, play in the overall plan. Especially important will be his explanation of the proposed move of the OES communications facilities to new and larger quarters which is being held up for a variety of reasons. He will explain how we, as a Club, may be able to help in this situation.

The Board meeting will be held on February 18, 1985 at 8:00 P.M. Location will be the home of Rick and Dee Barber which is at 3141 Milner Rd. in Antioch.

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DEADLINE FOR NEXT ISSUE: Articles, Classified Ads, etc. by February 25 1985

Next Board Meeting at: Rick & Dee Barber, 3141 Milner Rd. Antioch February 18, 1985 8:00 P.M.

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MDARC General Meeting

Minutes of January 18, 1985
Meeting was called to order at 8:05 PM by Rick Barber, President.
Visitors/guests were introduced (see sign-in sheet).
There were no upgrades to announce.

Old Business:
1. 1984 Club Awards not presented at the Christmas party were read.. Bob Dahl, KA6LSL, was present to receive his.

New Business:
1. A repeater has been installed in the Oakland hills which will link via 450 to the 147.735 machine. The new repeater has a frequency of 146.535 with an up split.
2. The next Club board meeting is scheduled for Monday, January 21st, at 8 PM at county OES.
3. Deadline for submitting articles for the next CARRIER is January 30th.
4. Announcements by Bob Dahl, KA6LSL.
   a. Equipment sale - Silent Key WA6JSO, Lou.
   b. Repeater group meeting scheduled for Wednesday, January 30th, at 8 PM in the Thurman Casey Library.

Committee Reports:
1. Education - Guy Corynen, WD6G
   a. Thanks to KT6Y, KE6ND, KE6RV, and Mike Whitten for their teaching efforts this past semester.
   b. Thanks also to KT6Y, and KT6X for their efforts in the volunteer examiner program.
   c. Enrollment in spring classes is as follows: Novice - 10, General - 10, Advanced/Extra - 10
   d. Will hold special exam sessions for the blind, handicapped, and Seventh Day Adventists. Any help would be appreciated.
2. Field Day - Guy Corynen, WD6G
Field day effort last June resulted in MDARC being 1st in CA, and 8th in the country..... for our class.
3. TVI - Guy Corynen, WD6G
New telephones creating interference problems ????
4. South County EC - Guy Corynen, WD6G
Needs help - especially in putting up antennas.
5. Membership - Jim House, KA6IVF
Need to recruit new members .....Bring a friend!
6. Social - Vicki Zumwalt, N6KLS
   a. A survey form will be published in the next CARRIER for members to complete.
   b. Input on having an annual picnic this year was requested.
   c. Possible sites for Club trips were reviewed.

Treasurer's report was given by Mary Bradshaw, N6KLM. Fiscal report for 1984 was made available to members.
A Refreshment Chairperson, Frances Risner, was appointed (ie. volunteered by Scott Miles, WB6PQM
Rick Barber, WB6EZI, reported that the Lortsher family would again be publishing the Club newsletter. This results in a large savings to the Club. Bulk mailing is continuing to be investigated.
Dwayne Eskridge, W6LKE, suggested that the Club participate in Armed Forces Day.
Thanks given to Harry Styron, K6MFV, for taking prize committee chairpersonship.
Break at 8:40 PM - Meeting resumed at 9:00 PM
Scott Miles, WB6PQM, introduced the speaker, Capt. John Hart of the Contra Costa Sheriff Dept., who spoke on "911" and how it works in our county.

Meeting was adjourned at 10:15 PM.

Respectively Submitted
Nancy Grant, N6ERT
Secretary Pro-Tem

MDARC Board Meeting

MDARC BOARD MEETING JANUARY 21, 1985
QTH O.E.S. 50 GLACIER DR., MARTINEZ

The meeting was called to order at 8:20 by our President Rick Barber, WB6EZI.

Board members present: Scott, WB6PQM; Mary, N6KLM; Jim, KA6IVF; Jay KT6Y; and Dee, N6EJU.
Member present: Mike Scott, N6GOZ.
Discussion took place concerning Club directory. Hopes are to have the directory ready for the April meeting.
M/M/S/P, that a membership certificate be given out to all new members.
Jay Caldis, KT6Y will be net control for the new Thursday evening net, to be called MDARC NET. It will start Feb. 21st at 7:30 PM.
Discussion took place concerning plans for MDARC March Auction. Jim to contact possible chairman.
Vice-President: Scott WB6PQM reported no speaker as yet for February meeting.
Treasurer: Mary, N6KLM reported that we have $661.48 in checking and $537.17 in savings.
Membership: Jim, KA6IVF reported that we have 110 members at present.
M/M/S/P That Club name be placed in world radio and extra copies we receive be given as prizes at club meetings. Special Events: Mike Scott, N6GOZ chairman for the event announced the forth coming "SPACE LAB MISSION' to be held at Montgomery Wards shopping center. It will be sometime in April. Volunteer operators needed.

Respectively Submitted,
Dee Barber N6EJU
Secretary

The President's Corner....

I have a feeling that this is going to be a year of action. Things are starting to happen early this year. This weekend has been beautiful so I went out and put up another tower. Bob and Paul have been working on the repeaters with a vengeance and they seem to be playing very well. Other groups are putting up new repeaters and links and a new packet system has emerged over at "PQM's site. The RACES group is cleaning up loose ends and has a viable list of projects and goals for the coming year. Best of all, membership in this Club is growing rapidly with many of you getting new hams to join and old members to renew. This is especially important if we are to expand our service to the various communities in the area.

Ham radio was created to provide a service to the community, not to create a "hobby" as is so often pointed out by Dwayne Eskridge. I was reminded of this fact just yesterday when a reporter from a south-county newspaper called me to ask questions about the Club. Its members, and their interests in ham radio. I told him about DXing, RACES, RTTY, ATV, ragchewing, and public service work. I described our station and why Dee and I had dedicated it to community service. He was overwhelmed when I told him of the vast number of hams who so freely give of themselves to public service events. He asked about the recent chemical spill on the Benicia bridge and the role which ham radio played that catastrophy. He was amazed that there are so many public spirited operators in the ham radio community.

To tell the truth, I wasn't. I have been in ham radio for over twenty years and have worked many public service events in those years. The first was the Alaska earthquake in the early 1960's. I guess you could say that single event made this lowly person realize the importance of ham radio and the good it can do for our fellow humans. More recent events have always proved that all hams, despite their own favorite operating mode, are all dedicated to the public good should the need arise. I am made aware of this fact every time a catastrophy occurs. If you ever want to find out where your friends have been during long periods of radio silence, just turn of the rig during a chemical spill. I guarantee that you will hear at least one long lost friend asking what he or she can do to help. You will also hear me.

Keep some of these thought in mind as you keep hamming, keep recruiting, and keep coming to the meetings. '73 Rick

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RACES/ARES

E. C. REPORT

(1) AMATEUR SATELLITES AND EMERGENCY COMMUNICATIONS!

Almost every mode of amateur communication and every resource have been used at one time or another for emergency communications. Now, with the successful operation of AMSAT-OSCAR 10, reliable satellite emergency communications is possible for the first time.

OSCAR 10 is providing a new mode that is open 8 to 10 hours each day at this time and, in the next few years, this new medium will be open 24 hours a day to almost any part of the world. Together with pocket radio technology this will provide international (and national) emergency communication capability.

As reported in QST (January 1985), a new AMSAT subgroup is being formed: the AMSAT Satellite Emergency Communication System (ASECS). The purpose of ASECS is to provide a satellite emergency communications and formal message traffic system.

AMSAT is looking for amateurs who would like to be involved in the organization of ASECS, and MDARC/OES need knowledgable hams to help weave this concept into our emergency preparedness and response capabilities. Please contact David C. Eanes, N4AZI, AMSAT Emergency Communications Manager for further information on ASECS. His address is 4866 Drusilla Lane, Baton Rouge, LA 70809. Please contact me to discuss any progress in this area. (WD6G, Guy)

(2) TOWARDS A REPEATER NETWORK!

The WA6WVH group, under the technical direction of WA6OCZ (Louis), is planning a multiple-output repeater linked pair to enhance the coverage of the 147.735 machine. This would involve two machines, one located at their current location, and another in the Berkeley hills. The first would operate as usual on 147.735 MHz(-split) and the other would operate on 146.535 MHz with a positive (+) split of 600 KHz. This way the inputs to both machines would be the same (147.135 MHz) and spectrum would be economized. Both machines would be linked by a 450 MHz link so that each machine would be slaved to the other.

Operating a repeater on a simplex frequency raises a subtle regulatory issue, however, and som controversy has arisen. Some amateurs have complained that such an operation interferes with their simplex QSO's on 146.535 MHz. The national VHF coordinator at the ARRL clarified that the ARRL has no objection to the WA6WVH plan as long as they coordinate with and get sanctioned by NARC, our local repeater coordination organization. I will keep all interested Club members informed of any significant developments.

(3) KAISER HOSPITAL SYSTEMS ASSISTS AMATEUR RADI

Kaiser Hospital Services have purchased a KENWOOD TR7930 2 meter FM transceiver for installation and operation at their Walnut Creek Hospital. This precedent is important to the amateur radio service, and more such units are planned by Kaiser.

(4) EMERGENCY COMMUNICATION SITES PREPARING FOR PERIODIC ACTIVATION!

Our RACES/ARES group is planning a periodic activation of the various sites at Hospitals, Fire Stations, Police Stations and other Strategic parts throughout the county. A first step in the completion of site manuals and their delivery to the sites. These manuals include such things as station logs, message logs, and up-to-date information on the condition of the associated site.

Assistance from Hank Berriman (W6ZHY) in some of the above items is sincerely appreciated.

Guy Corynen WD6G

Renewing

ARRL MEMBERSHIPS

Don't forget to renew your ARRL membership through the club. Send us the card and money. We foreward to the ARRL and get to keep $2.00.

KUDOS TO GUY CORYNEN WD6G!
Several fine articles in the CARRIER this month.
WHAT A GUY!

RADIO CLASSES

F.C.C. VOLUNTEER EXAMS PROVIDE RENEWED GROWTH FOR AMATEUR RADIO!

Amateur radio is experiencing a decline in membership and activity nationwide. The new volunteer exam program appears to be halting if not reversing this trend, if recent accounts of upgrading and novice licensing is accurate.

With its novice through extra classes, and with the very successful VEP, the MDARC is contributing in a significant way to this negative trend reversal. At the recent F.C.C. exams administered by MDARC volunteers, 26 hams were upgraded. Here are some specific statistics. Number of candidates registered for the session: 43; actually attending the session: 37;Technician 9; General 12; Advanced 5; 20 WPM code credit 1.

Although the atmosphere at the session was positive and relaxed due to an outstanding crew of examiners and other volunteers, a couple of improvements will made for the next session. The first concerns exam scheduling.

Another issue concerns the use of calculators. I have forbidden the use of programmable calculators during any exam. However, the definition of "programmability" is difficult and was not stated clearly on the pre-exam instructions.

I have discussed the problem with several computer scientists and even they could not arrive at a practical consensus which could stand up to applicants litigate the issue with the volunteer examiners, or with the Club. Regardless of technical issues, however, whatever programmability really means, it is difficult today to purchase any calculator which is not programmable in some way.

I have written a letter to the ARRL on this subject including various questions, and also specific recommendations. I will keep CARRIER readers and the Club informed of any improvements in this situation.

I would like to close with some well-deserved ackknowledgements. Thanks to Jay (KT6Y) and Dick (KT6T)for the valuable help in running the sessions. Next, Norma (N6EJZ) and her family for the use of their motorhome, and for providing pop and coffee for everyone. They arrived at "College Park" hours before the exams, and stayed until everyone had left. Finally, my appreciation to KE6RV (Jim), KA6IVF (Jim), KA6AEV, for monitoring the sessions and for other courtesy tasks. Thanks to all of you, our program is becoming very successful. '73 Guy WD6G

miscellaneous

LETTER TO MDARC!

To all my OLD friends, and the new ones, too:

It is with sincere regret, that after over twenty-five years of membership in the Mount Diablo Amateur Radio Club, I find it necessary to allow my membership to run out. I am now and have been for three years a member of the Nevada County Amateur Radio Club. This year I am serving the Club as President as I did for your Club in 64 and 65.

Looking back over the years, I have to say that I was extremely proud to be a member of MDARC and taking part in the activities with such an active group. Happiness is in being able to remember and I remember PARKY K6IMV, GEORGE WA6DKG and BETTY LOU KB6UX, who are still on the air with me on NCN VHF. Well, Parkys not there but I seem to be able to chat with him each time I come to the Bay Area, and it is a pleasure.

I am going to miss the CARRIER most because it kept me informed as to what was going on, where and when.

My thanks to the Club for the courtesy extended to NCARC some time ago in regards to copies of the By-Laws and Incorporation papers. They have become quite valuable in helping us to establish ours.

I say again, I deeply appreciate the friendship, courtesy and kindness I have received from the Members of the Mount Diablo Amateur Radio Club. I shall not forget!

73's to all,

Loren, WD6BZQ, WA7OAM, WA6FBS
Loren Young: 164A West Empire St., Grass Valley, CA 95945

ATTENTION PLEASE

IF YOU MOVE, ADDRESS ALL ADDRESS CHANGES TO THE MDARC MEMBERSHIP CHAIRMAN NOT THE CARRIER EDITOR.

The membership Chairman is responsible for maintaining an up to date mailing list. Send your address change in care of the Editor only delays the change.

Thanks
Ed

TECHNICAL CORNER

by Guy Corynen, WD6G

PREFACE

The density of two-meter repeater's is leading to serious overcrowding in the repeater subbands of the 144-148 MHz band, particularly in California. Recent interference problems between repeaters provide compelling evidence that the over crowding is not only a matter of frequency-pair allocation (there are none left, a NARC member tells me). It is also a problem in power and space allocation. The number of repeater owners and operators is growing rapidly in some regions, more of them want to operate their machines in close physical proximity, with the maximum allowable ERP, and from a high-level location. In addition, new networking concepts, remote bases, and other forms of linking are emerging rapidly in the amateur world. If we add to this the trend towards a closer repeater seperation of 15 KHz (at least in California), and the sanctioning of machines which operate on neighboring frequencies and on neighboring hilltops, and which use reverse splits, we have a serious potential for disaster, particularly if some of these machines must be relied upon for emergency communications.

Since much of what I said thus far is familiar to many of you, why am I writing this paper? The answer is very simple, as you will see.

After attending several repeater meetings, and after discussing repeater problems with my amateur friends, I discovered that most discussions were repetitive, dragged on for hours, never resolved much, produced more enemies than friends, and gave rise to a lot of politics and power plays. One reason for this was a lack of clear definition of the problems. How could issues be clearly resolved if they were never clearly stated to begin with.

I do not suggest that the discussions be transformed into a theoretical and academic exercise, only that the problems be attacked with the seriousness and formality they deserve. As problems become more complex, they can only be resolved by increasingly powerful solution methods. Whereas in the social sciences, some of these methods are admittedly political, I strongly beleive that contemporary repeater can be resolved-or be determined to be unresolvable-on technical grounds alone. If we could approach these problems in this way we could elimate politicians and pseudo-experts from the scene altogether. We would not have to ingratiate ourselves with members of NARC or similar organizations, and we would create a much more positive and respected image within the amateur community, and outside it.

I admit that my objectives are ambitious, and possibly somewhat idealistic, but I will pursue them until reach their technical and practical limits.

In the following paper, which I will complete in several installments, I hope to demonstrate the negative result that certain repeaters, currently operating or in the planning stage, cannot coexist without mutual interference, if standart state-of-the-art amateur equipment is used. On a more positive note, I will also suggest several methods for resolving these coexistence problems.

SOME DESIGN ISSUES IN THE DEPLOYMENT OF F.M. RADIO REPEATERS

PART 1 Electromagnetic Coupling Between Repeaters Introduction:

When a carrier is amplitude modulated with a modulating signal of 1 KHz two sidebands are produced, one at the carrier frequency minus 1 KHz (lower sideband), and the other at a carrier freqquency plus 1 KHz (upper sideband). When a spectrum (band) B of modulating signals is considered, the upper sideband consists of the carrier plus the modulating band B and the lower sideband consists of the carrier minus that band. The ouput spectrum and bandwidth of an AM transmitter (similarly, aSSB transmitter) is thus easily controlled by controlling the bandwidth of the modulating signal.

Such is not the case for Frequence-Modulated (FM) signals. When their modulating signal is I KHz, such signals produce sidebands at I KHz intervals to infinity, even when narrow-band FM is used. When two repeaters are spaced 15 KHz in frequency, serious interference problems can be experienced with current amateur equipment, particularly if both machines are using reverse splits (15 KHz removed from the output frequency of the other.

One purpose for the paper is to determine the physical distance, antenna gains, power levels, modulating conditions, squelch settings for which such interference will arise, or when lock-up can be expected for machines using inverse splits. Another purpose is to suggest several design methods for eliminating such interference, or for reducing it to an acceptable level. Some methods for reducing or eliminating such interference during squelching have been developed and currently in use, but these are effective only during squelch actions and account only for the significan bandwidth increase during squelching processes. We concentrate here only on steady-state conditions between squelching actions, where repeater carriers are up and are modulated by users.

The paper consists of 3 chapters. The first derives the electromagnetic coupling between repeaters for an unmodulated carrier. Then, in chapter 2, we consider such a coupling for FM modulated carriers, and we determine how much of the transmitter spectrum is coupled to the receiver of the other repeater. We specifically emphasize conditions under which received signals exceed the receiver's squelch level and fall outside the 15 KHz bandwidth. This is the problem condition we are looking for. Finally, chapter 3 presents some remedies which are promising and not currently in use.

(continued of next page)

Chapter I: ELECTROMAGNETIC COUPLING BETWEEN REPEATERS:

We consider the simple free space situation of figure 1. This is a conservative condition where things can only improve if reflections or othe ground interactions are present.

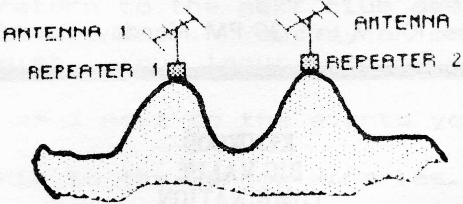

Figure 1. We consider the conservative situation where two repeaters are within line-of sight of each other, and where no reflections are present (free-space operation)

Each of the repeaters can be electrically represented as in figure 2 below. First we determine the actual radiated power, which is the transmitter output power minus the various losses in the transmission line and in the antenna.

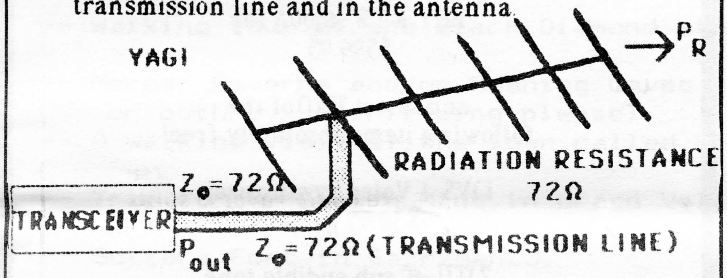

Figure 2. Simple electrical representation of a repeater. Without loss of generality, we assume impedance values as shown.

$$P_R = P_{out} - P_{loss} \quad \text{(Watts)} \quad \ldots\ldots\ldots\ldots (1)$$

Where: P_{out} is the transceiver output power (W)

P_{loss} are the system losses (W)

The losses consist of line losses P_{line} and antenna losses P_{ant}, which are found from the antenna radiation efficiency $\eta_T = \frac{P_R}{P_{in}}$ where P_{in} is the power fed into the antenna terminals.

Combing these simple power equations, we get the actual radiated power P_R

$$P_R = \eta_T(P_{out} - P_{loss}) \quad \text{(Watts)} \quad \ldots\ldots\ldots\ldots (2)$$

Since antenna effiency is usually published by the manufacturer, or is easily found, and the output power P_{out} and line losses P_{loss} are usually known, the determination of P_R is easy.

electromagnetic coupling (cont'd)

Next, we find the power density P_r in space at a distance r meters from the transmitter. We assume that we measure this power in the main lobe of the transmitting antenna.

$$P_r = \frac{3 P_T \bullet G_T}{4\pi r^2} \quad (\text{Watts/m}^2) \quad \ldots\ldots\ldots\ldots (3)$$

This is simply the power flowing through a unit area (m^2) a distance of r meters from the transmitter when the transmitting antenna has a gain factor of G_T if the transmitting antenna has a gain of 20 db, for instance, this factor equals 100. If the gain is 10 db, $G_T = 10$.

Next, we determine the power received at the receiving repeater's antenna terminals. This is

$$P_{REC} = \eta_R \bullet A_E \bullet P_{rR} \quad \ldots\ldots\ldots\ldots (4)$$

Where: η_R is the receiving antenna efficiency
A_E is the effective electrical area of the antenna
P_{rR} the power density at the receivers antenna

The effective area A_E for any antenna is derived in the excellent textbook by Weeks [1] and others.

$$A_E = \frac{G_r \lambda^2}{4\pi} \quad \ldots\ldots\ldots\ldots (5)$$

Where G_R is the gain factor of the receiving antenna
λ is the wavelength of the signal

The power at the receiver inputs is simply

$$P_{in} = P_{REC} - P_{loss\,R} \quad \ldots\ldots\ldots\ldots (6)$$

Where: P_{loss_R} is the power loss in the receiver's transmission line.

Finally, the voltage at the receiver, whose input resistance is Z_{in} is simply (by OHM's law)

$$V_{in} = \sqrt{Z_{in} P_{in}} \quad \ldots\ldots\ldots\ldots (7)$$

Combining all these equations, we get:

$$V_{in} = Z_{in}^{1/2}\left(\frac{3\, \eta_R G_R G_T \eta_T (P_{out} - P_{loss})}{(4\pi)^2 d^2} - P_{loss\,R}\right)$$

This relationship clearly shows the relationship between voltage received at one repeater due to the power transmitted from another, and accounts explicitly for antenna gains and efficiencies the distance d between repeaters, transmission line losses, and antenna gains. In the next chapter, we shall use these results in a spectral analysis to determine the voltages received for all frequencies in the transmitted spectrum.

Guy Corynen, WD6G

In the next issue of the CARRIER, we will publish chapter 2 of this paper on repeater interference problems.

Membership

Dear Fellow Amateur Radio Operator,

The Bay Area's largest amateur radio club invites you to join its membership for the new year 1985. We have a dynamic new leadership of fellow hams, working hard to provide a quality experience for all of our members.

The year promises to be a grand one, with our usual sparkling programs on the third Friday of each month, two bang up auctions, championship field day, and anything else your energy and imagination can help us put together.

Did you know that we have a powerful fast scan television repeater on Mt. Diablo? You can get the full story (all that's fit to print or show) in our fine monthly newsletter, the CARRIER. Don Smith and his hard working associates have made it possible to send color TV anywhere in the Diablo and Sacramento Valleys.

Come learn about all of the new frontiers of Amateur Radio, including satellites, new digital modes, fast and slow scan TV, antennas, contesting, etc.

Our Club sponsored repeater group has new smart controllers on both two meters and 220 mhz. Club members are elegible for membership in the repeater group, with access to an emergency autopatch on 2M, a member accessible autopatch on 220 mhz, and many other features to be discussed at future bimonthly repeater group meetings.

Our Club auctions are the talk of the West (Well...West county, at least). If you have a garage full of old military surplus boat anchors, still in working condition, but can't get up the nerve to send your collection to the junk yard, remember, somewhere out here may be a young novice who can't afford a shiny new appliance, and would probably get a lot more out of making one of those old "MARS" specials operate (hopefully within the band).

All we are lacking is your participation to make it complete. Won't you join us today? A membership form is inclosed for your convenience. The CARRIER will not be sent to persons who have not paid their 1985 dues after this issue.

Jim House, Membership Chairman

P.S. If you have already paid your renewal dues, please pass the membership application on to a friend.

New Members

Les Simmonds, W60VJ, Glen Zumwalt, N6JTK, David D. Doherty, KA6ZBN, David Bond, WA6UPU, Don Protzman, K6LXW, Carson Taylor, John Percival, KG6HU, Donald Pomplun, K2BIO, David Deford, KOED, R.L Robinson, Chuck Grant, KB6UY, Patrick Whittle, AK6T, James Elrod, WB6WLU.

WELCOME TO YOU ALL ! !

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AMATEUR RADIO INVENTORY
IN NORTHERN CALIFORNIA

ACTIVITIES

Important club survey for this years social events. Please fill out, clip and return to the next club meeting. Surveys may be deposited in a box at the door. You may or may not include your name on this, as you wish. Your input into club activities counts!

Mark an X next to the events you would be most interested in.

-- Trip to the Sonoma Wineries.

-- Trip to the Napa Wine Country.

-- Trip on the Russian River Wine Road.

-- California State Railroad Museum located at Second and I streets in Sacramento.

-- Boat cruise from San Francisco to Sacramento (round trip).

-- Walking tour of the Black Diamond mines in Antioch.

-- Mercer Caverns and/or Moaning Caves near Murpheys. (Indicate one or both by underlineing please).

-- A walking visit of the town called Locke on the Delta.

-- Trip to the Empire Mine in Grass Valley.

-- Sutters Fort in Sacramento.

Please indicate if you have other ideas for trips the club might take in the space below.

We would like our trips to be fun for the whole family. We will try to keep the trips under 100 miles and approximately 2 hours or less one way with stops in between! Some of the above trips may require a fee which I will inform you of before hand.

One last question please! Do you want the annual summer club picknick? Yes or No

Any questions or comments you would like to make please feel free to contact me at home.

Vicki Zumwalt, N6KLS 458-4527
Social Chairperson

THINK QUALITY - BRING QUALITY

The first auction of the MDARC for 1985 will be March 15, at the regular General Meeting. Check - in and Preview will be from 6 - 7 PM. Auction will be from 7 - 10 PM. More next month so start savings your goodies.

John Keibel, WA6SWO 686-1818

From:
Mt. Diablo Amateur Radio Club, Inc.
P.O. Box 23222
Pleasant Hill, Calif. 94523
Affiliated with the ARRL
Affiliated with the American Red Cross

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